NOVEL FATTY ACID CONJUGATED TETRAPEPTIDE AS A NEW ACTIVE MOLECULE FOR WOUND TREATMENT

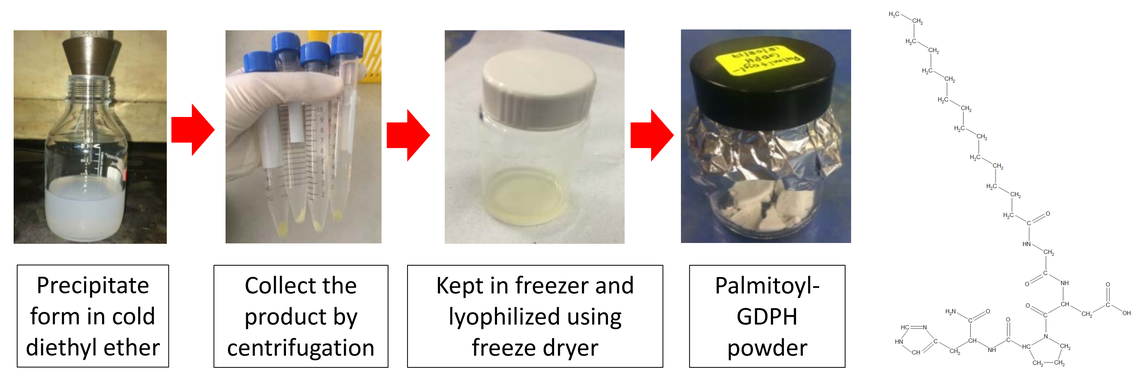
PATENT NO. PI 2018702490

INTRODUCTION OF TECHNOLOGY

Wound-healing represents a major health burden, such as diabetes-induced skin ulcers and burning. Many works are being tried to find ideal clinical wound-healing biomaterials. Compared with those drugs with high cost, low activity, safety and delivery problems, bioactive peptides with high activity, specificity, and stability have aroused considerable interest in the related field of research. In this study, a novel palmitic acid conjugated glycine-aspartic acid-proline-histidine (Palmitoyl-GDPH) was designed and proved to be a potent wound healer. It showed strong wound healing-promoting activity of full thickness dermal skin wound rats model and thus deserve to be explored as wound healing-promoting drug.

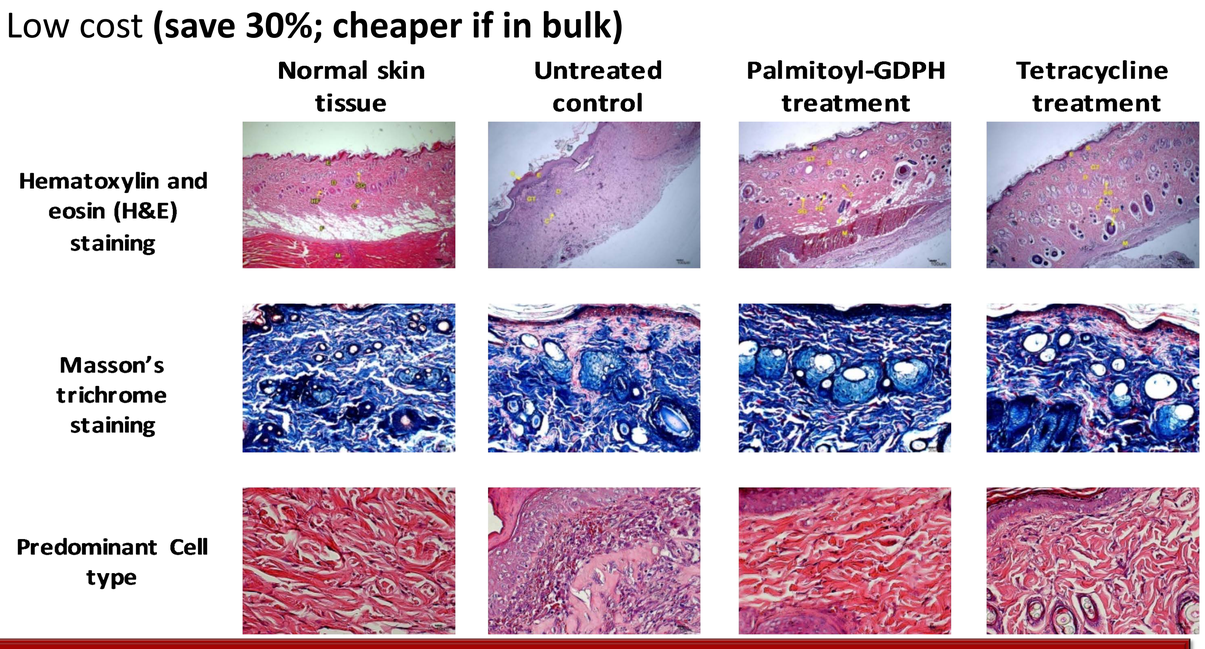
INVENTION

- A tetrapeptide (Glycine - Aspartic acid - Proline - Histidine)- GDPH composition as a new small sequence (composed of 4 types amino acids).
- Conjugation of fatty acid (Palmitic acid) to GDPH become a **Palmitoyl-GDPH** as a new molecule.
- It acts as a new biological active molecule to provide a medicament for cutaneous wound.

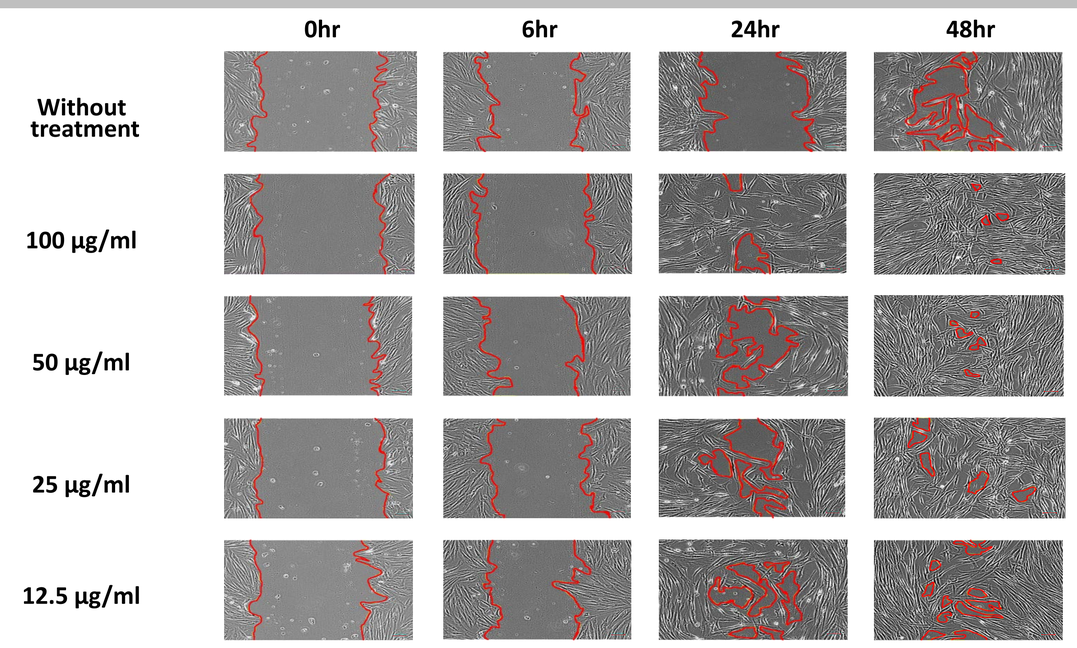


ADVANTAGES

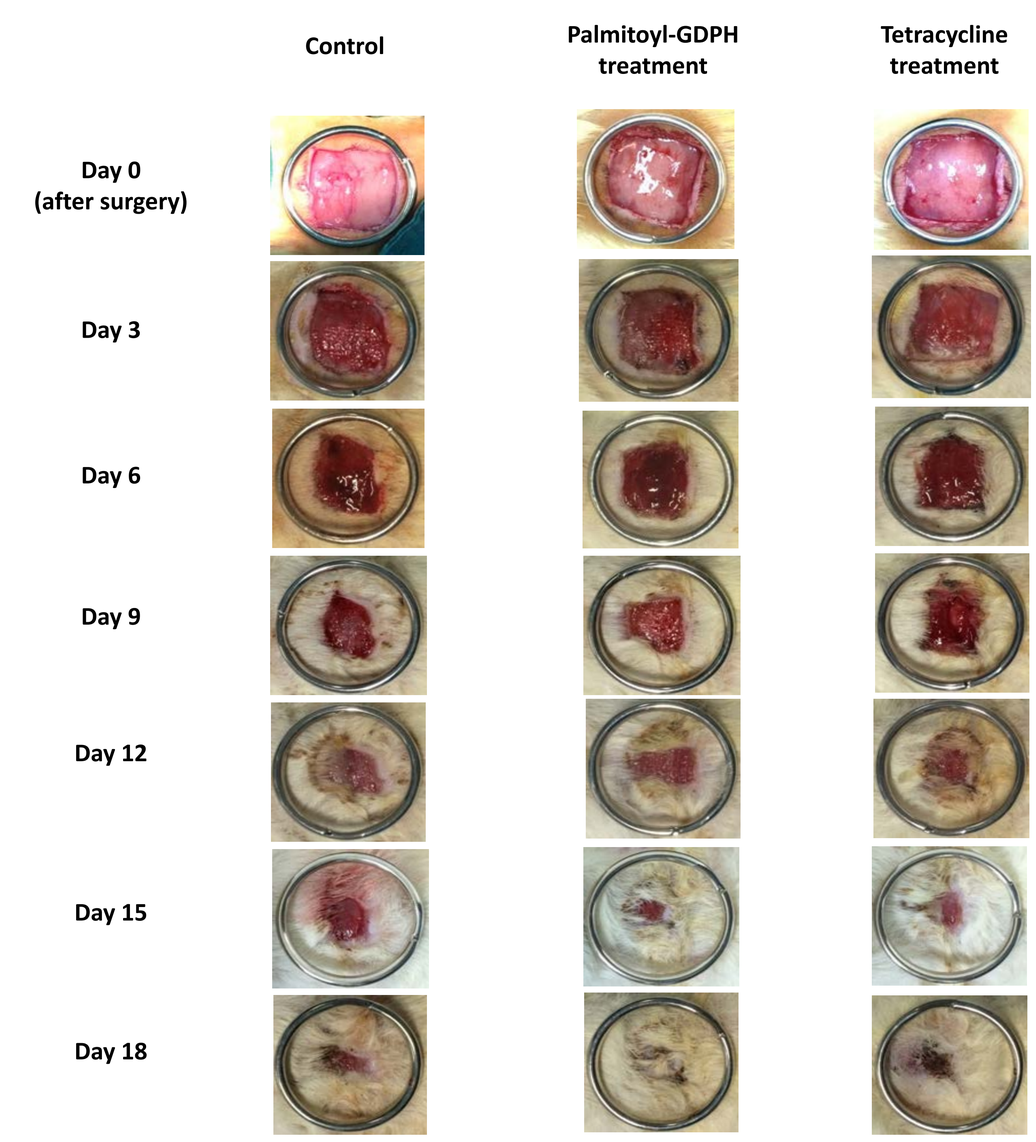
- Not toxic to normal human dermal fibroblast (NHDF) cells **(cell viability above 80% up to concentration 100 µg/ml of the peptide)**
- Facilitate cell migration **(full gap closure up to 98.4% within 48h treatment)**
- Increasing collagen production **(area of 90.3%; higher than standard drug 67.5%)**
- Stimulate fibroblast proliferation **(area of 82.6%; higher than standard drug 71.5%)**
- Promote cell maturity **(only a few inflammatory cells)**
- Accelerate wound healing **(wound closure up to 100% after day 18 post-surgery)**
- Low cost **(save 30%; cheaper if in bulk)**



In-vitro



In-vivo



MARKET POTENTIAL

Palmitoyl-GDPH Is Suitable For:

- **Pharmaceutical Industry**
  - ✓ Active ingredients for topical wound treatment
  - ✓ Foot ulcer diabetes
  - ✓ Reduce scar tissue
  - ✓ Promote regrow of skin's hair follicles
- **Cosmeceutical Industry**
  - ✓ Anti-aging
  - ✓ Anti-acne (e.g. formulation with azelaic acid)

Consumer/ End user

- Human (Healthy/Diabetic)
- Animals (Large animals/Pets)

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